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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/470,621	12/22/1999	PETER SLADEN	200-009119-US	6377

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EXAMINER

SOLOMON, GARY L

ART UNIT	PAPER NUMBER
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2615

DATE MAILED: 05/10/2004

13

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/470,621

Applicant(s)

SLADEN, PETER

Examiner

Gary L Solomon

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4-14-2004 has been entered.

Response to Arguments

2. Applicant's arguments with respect to claims 12-19 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

3. Claims 13-19 are objected to because of the following informalities:

4. The claims are dependent from the previous independent claim. Appropriate correction is required.

5. The examiner will interpret them as if they are dependent from the new independent claim 12.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 12-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Watanabe (US 4,500,914).

8. For claim 12, Watanabe discloses:

an image sensing device having an array of image sensors (Column 1, Lines 6-9) and a filter structure disposed in relation to the sensor (Figure 8b),

the filter structure comprising blocks of filter groups (Figure 8b), each group having a combination of one or more areas adapted so as to allow light to pass there through onto corresponding image sensors with color filtering (Figure 8b, The R and B's represent Red and Blue Color Filters.) ,

and one or more areas adapted so as to allow light to pass there through onto corresponding image sensors without color filtering (Figure 8b, Column 7, Lines 8-16; Figure 8b shows an alternative embodiment of the Watanabe invention in which the Green Filters in the first embodiment (Figure 4) are replaced with W or white transparent colorless filters.),

wherein said one or more areas adapted so as to allow light to pass there through onto corresponding image sensors with color filtering comprise two color filters (Figure 8b; In the first two rows and 3 columns and three columns, there is one blue and one red color filter.),

wherein said one or more areas adapted so as to allow light to pass there through onto corresponding image sensors without color filtering comprise four filter-less areas or non color-filters (Figure 8b; In the first two rows and three columns, there are four white colorless filters.),

wherein the filters are arranged such that in each repeating filter block there are two color filters for every four filter-less/non-color filters (Figure 8b; The shown picture is a piece of the

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whole structure. Therefore, the first two rows and three columns will repeat when the piece is placed within the whole structure. Also, the examiner reads the claim based on the broadest possible interpretation. The claim does not specify that the pattern be repeating and adjacent.).

For claim 13, the Watanabe reference discloses all the limitations of claim 12, wherein the two color filters are one each red and one each blue filters (Figure 8b; In the first two rows and 3 columns and three columns, there is one blue and one red color filter.).

For claim 14, the Watanabe reference discloses all the limitations of claim 12, wherein the color filters are centrally located in relation to the filter-less/non-color filters (In Figure 8b, the red and blue color filters are located on the interior of the outer colorless white filters. Thus, they are centrally located.).

For claim 15, the Watanabe reference discloses all the limitations of claim 12, wherein the arrangement of said areas in each block of filter groups in the filter structure comprises strip line formation of said respective areas (In Figure 8b, the group of 6 color filters, which represent four colorless and 2 color filters is in a strip line formation.).

For claim 17, the Watanabe reference discloses all the previous limitations of claim 12, wherein said one or more areas adapted so as to allow light to pass there through onto corresponding image sensors without color filtering include one more color filters disposed partially there over (Figure 8b Note: There are numerous Colorless Filters).

For claim 18, the Watanabe reference discloses all the previous limitations of claim 17, wherein said one or more areas adapted so as to allow light to pass there through onto corresponding image sensors without color filtering comprise color filter strips (Figure 8b: Note: There are numerous Red and Blue Filters).

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For claim 19, the Watanabe reference discloses all the previous limitations of claim 12, wherein said color filtering areas are disposed centrally in the filter group and said areas without color filtering are disposed generally in a square like configuration around the central color filters (Figure 8b; In the first two rows and three columns, the four colorless filters are disposed in a generally square like configuration around the two centrally located red and blue color filters).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe (US 4,500,914).

Watanabe discloses all the previous limitations of claim 12, but discloses his color-filtering pattern in a CCD device, not a CMOS device. Watanabe does not disclose teaching wherein said pixel and said circuit are formed by CMOS processes. However, official notice is given that it is well known to use CMOS processes over CCD processes are well known in the art.

CCD sensors rely on specialized fabrication that requires dedicated—and costly—manufacturing processes. In contrast, CMOS image sensors can be made at standard manufacturing facilities that produce 90% of all semiconductor chips, from powerful microprocessors to RAM and ROM memory chips. This standardization results in economies of

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scale and leads to ongoing process-line improvements. CMOS processes, moreover, enable very large scale integration (VLSI), and this is used by our "active-pixel" architectures to incorporate all necessary camera functions onto one chip. Such integration creates a compact camera system that is more reliable and obviates the need for peripheral support chip packaging and assembly, further reducing cost.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention construct the device of Watanabe using a CMOS process in order to reduce cost in the construction of the image sensor.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gary L Solomon whose telephone number is (703)-305-4370.

12. The examiner can normally be reached on Monday - Friday 8:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's primary, Vu Le can be reached on (703)-308-6613.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

Or faxed to:

(703) 872-9314, (for informal or draft communications, please label
"Proposed" or "Draft")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,
Arlington, VA., Sixth Floor (Receptionist).

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Any inquiry of a general nature or relating to the status of this application should be directed to the customer service number **(703) 306-0377**.

Gary L Solomon

May 3, 2004


VULE
PRIMARY EXAMINER